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ABSTRACT

This report reviews certain problems of international transfer of technology in the field of administration of higher education within the context of current theory about change processes and examines one university's programs in this area. The focus of attention in this report is the Cooperative Graduate Education Program initiated in 1974 between the University of Houston (UH) and the Autonomous University of Guadalajara (UAG). Original program goals for UAG included improvement of instruction and administration: the UH goals were multicultural experiences for faculty and students (including future school administrators and bilingual teachers) and research opportunities. Through the analysis of one operational training model, selected aspects of change theory are illustrated and questions are identified that will require further study. (Author/MLF)

Institutional Strategies in Comparative Educational Administration

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This report will review certain problems of international transfer of technology in the field of administration of higher education within the context of current theory about change processes, and will examine the case of one university's programs in this area. Through the analysis of one operational training model, selected aspects of change theory are illustrated, and questions are identified which will require further study.

Historical Perspectives

Writers and practitioners in the field of administration, whether the area is business or educational administration specifically, acknowledge our heritage of technology: the domestication of animals, agriculture, irrigation systems, food preservation, writing, clocks, printing, computers, and language itself. Following discovery or invention, a particular technology is "transferred: or "diffused" through various means. Historical transfer mechanisms include migrations, invasions, trade and other economic interchange, travel and exploration, and educational exchanges. These broad areas of technological development and transfer are continually studied by historians and other scholars interested in man's intellectual and cultural development.

Scientific studies of "change processes" in human institutions have become common only in recent decades. Analysis of techniques of transferring technologies into different cultures has moved from the generally economics-driven concerns of colonial powers of the last several centuries to the post-World War II period of world

development in which one can hope for larger elements of humanitarian values mixed with the ever-present search for physical survival and economic benefit. The role of education in assisting other nations to develop their social structures and resources has been a highly visible one in most "international development" programs sponsored by the United States since 1945, whether the major purpose was to help create new total systems to educate children, youth, and adults or to prepare trained personnel for specific economic or governmental roles. And while studies of educational administration in terms of systems theory and organizational theory (for example) are common in the United States, similar studies comparing administrative systems and procedures of different nations are of relatively recent origin. From the mass of relevant literature are now emerging specific types of knowledge which can serve both as bases for implementation of administrative technologies and as generators of hypotheses for further study of change strategies and processes.

The need to have culturally favorable conditions in order for the transfer of technology to be successful (except in those cases involving coercion) is recognized by current writers, although enough failures can be associated with lack of understanding of this factor to indicate that it is not necessarily obvious. Kast and Rosenzweig (1979) provided an interesting analysis of the common values through which science, technology, the Protestant ethic, and capitalism have coexisted -- values often assumed by North Americans and Europeans, but not necessarily by people in other parts of the world. These values include "emphasis on rationality, empiricism, a utilitarian mentality, the view of humanity's need to utilize the resources of nature for personal betterment here on earth and for the glory of God, and the importance placed on knowledge and

literacy" (p. 32). Lederer and Burdick (1955) in The Ugly American described numerous failures and occasional successes of transfer efforts by Americans in Southeast Asia; recognition of local values, local needs, and local realities, with a resulting willingness to permit adaptations (rather than insisting on adoption), appeared to be the significant difference between success and failure.

(The purposes for which international transfer of technology is undertaken in the first place are not addressed here. Carnoy (1974), for example, argues that United States assistance to foreign countries for economic and social development -- specifically including educational assistance -- is motivated primarily by a "ruling class" drive for a colonial "empire" with its resulting business profits. Views such as his are not accepted in this study; benefits accrue in many places at various levels, to both participating groups.)

Definitions of Technology

Definitions of "technology" range from "application of scientific knowledge to practical purpose" to others recognizing the interplay between technical knowledge, processes, and complex social organizations. Kast and Rosenzweig (1979) expand their definition to include physical manifestations such as tools and machines, intellectual processes used in solving problems and securing desired outcomes, organizational technology or techniques used in the transformation of inputs into outputs, and social technology or the bringing together of material, human, and informational resources necessary to accomplish complex tasks. Sigurdson (1977) in discussing technology transfer in the international arena, refers to technology as "the systematic use of all technical

knowledge, methods, and operations in the control of nature; technology and social organization overlap insofar as technology usually incorporates administrative systems and work organizations ... Technology never exists in isolation; it is product-embodied or process-embodied and, in varying degrees, person-embodied, as it always exists in someone's mind." (p. 299)

Technology is task related; it is the way in which organizational members carry out their tasks; the methods, techniques, equipment, and principles used to carry out the work. Administrative technology is, then, at one level the way in which administrative tasks are carried out. For example, planning as an administrative task may involve the collection of survey data from members of the faculty. The methods and techniques used to carry out the collection and analysis of these data represent technologies. On a second level, technology includes principles which guide administrative behavior, such as the statement that "decisions are improved when they are based upon relevant information." Such principles, when they become guides for administrative action, become part of the organization's technology and lead to techniques and methods for carrying out organizational tasks. Related to principles, but on a higher level, are theories, which when used as guides to administration, also represent organizational technology. Theories are explanations of the effects which some organizational factors have on others. An explanation that "behavior in an organizational setting is a function of the needs of the individual and the rewards available to that individual through participation in the organization" is a technology. This explanation or theory may lead to principles and specific ways of carrying out organizational tasks.

Of special interest in an organization are technologies and tasks utilizing technologies which are directed toward regeneration of technology, that is, improvement of the technology of the organization. Such technologies, involved in research and development tasks, typically are directed toward improving the efficiency and effectiveness of the organization, or in revision of organization goals. The research and development activities referenced are those which concentrate on the field of administration and management, not those which are related to the broader research and instruction mission of the university, although some of the latter may also apply.

In summary, examples of technology in administration would include computer hardware, software, other machines, planning procedures, scheduling procedures, controlling procedures, accounting and budgeting processes, market-research surveys, personnel selection and training procedures, etc. Kast and Rosenzweig (1979) in analyzing the applications of technology in universities separate "academic" from "administrative" technology, relating the former term to the instructional process. Administrative technology is classified in four principal areas: academic administration (the organization and functioning of the academic staff); administration of student personnel services (selection, admission, and scheduling of students, and the recording of their achievements); business administration (accounting, auditing, reporting, and budgeting control; receipt, custody, and disbursement of monies; investment of funds; purchasing; management of auxiliary and service activities; operation and maintenance of institutional plant; selection and promotion of nonacademic personnel; and administration of staff benefits program); and public relations (relationships with press, radio and TV, alumni, solicitation of funds, maintenance of contact with possible donors and with legislatures).

Sigurdson (1977) defines "technology transfer" as "the communication and adoption of technology in an enterprise, industry, economic sector, or region" (p. 299). Studies of the change process note that changes are preceded by conditions favoring their adoption; one obvious example -- awareness of the technology under review -- is in the present study considered one level of transfer itself (followed by utilization and effectiveness). Sigurdson has summarized the mechanisms for transfer of technologies often used in international programs: the flow of published information, such as technical journals and books; foreign travel of students, engineers, and scientists; and technical aid and cooperation programs arranged by governments. Goulet (cited by Sigurdson) differentiates between technology transfer and technical assistance (which are often incorrectly used synonymously), and identifies six modes of transfer of technology, including direct investment by a large corporation into its subsidiaries, patent agreements, licensing agreements, servicing contracts, provision of training, and supply of technical manuals and instructions. Goulet further subdivides transfer mechanisms into "direct" (recipient is in direct contact with suppliers of technical knowledge) and "indirect" (an enterprise in an "advanced" country plays an intermediary role in the transfer process by providing a "package" of technical knowledge to the recipient).

Perspectives on the Change Process

What can be changed in organizations and in the way organizations carry out their work? The definition of an organization typically includes reference to goals and coordinated activities of the

members of the organization. The goals or purposes of an organization could be altered; the structure, both formal and informal, could be changed; the tasks that are required, as well as the methods, tools, and procedures used to carry out the tasks could be amended. Additionally, the people who work in the organization could change in terms of value, attitudes, knowledge and skills. These properties of organizations - goals, tasks, structures, technologies, and people-are clearly interdependent. A change in technology in an educational institution, such as that involved in automating the student registration system, could alter staff structure and task. A change in goals would be accompanied by a response in task, structure and technology. Technological change is just one aspect of change; as one seeks to alter technology, one should be cognizant of the impact such changes will have on other aspects of the organization. Further, the change agent should realize that a technological change may be precipitated by a change in another component of the organizational system.

Strategies of Change

Chin and Benne (1976) identify three categories of strategies for effecting change. The first of these they identify as empirical-rational strategies. These strategies are based on the assumption that humans are rational and that they will follow their rational self interest, once this self interest is revealed. Change will be adopted if it can be rationally justified through the presentation of new information. Empirical-rational strategies are likely those used most frequently and include general education, personnel selection and replacement, and consultants whose primary function is the presentation of information.

The second group of strategies, labeled normative-reeducative, accept the rationality assumption, but further are built upon the assumption that human activity is supported by sociocultural norms. Change in behavior occurs only when normative orientations change and new orientations take their place. Change processes, then, focus on changes in attitudes, values and relationships, as well as on knowledge and rationale.

Power forms the basis for the third group of strategies, labeled power-coercive. Those with less power are influenced to follow the directives of those with greater amounts of power. The strategy frequently involves establishing legal or administrative authority as a basis for change.

The basic change strategy utilized in most educational institutions falls into the category of empirical-rational strategies. While there might be some acknowledgement of normative orientations, most graduate education programs do not take full account of such orientations and are not directed at changes in this orientation so much as they are toward knowledge and skill development. In international programs, however, consideration of normative orientations takes on added importance, both in the assessment of which knowledges and skills are legitimate to be transmitted and in paving the way for new technologies which may not initially be seen as legitimate. Power as a strategy for change is rarely utilized by educational institutions, but governments and other authorities may require participation in certain educational programs. Once knowledge and skill are transmitted to those in programs, the application of the transferred skills within the resident organization could take place utilizing strategies in any of the three categories.

Factors Associated with Successful Change

The assessment of change processes may include study of the organizational problem to be addressed, the change proposed, as well as the characteristics of the change agent, internal structures, and external environments or forces. Various theories of change, which attempt to explain successful change strategies, reference one or perhaps several of these factors. Dunn and Swierczek (1977) formulated several hypotheses derived from change theories existing in the literature. Their retrospective analysis included consideration of 67 change studies. The results of their analysis did not overwhelmingly support change theories tested; only three of the eleven hypotheses they presented were supported. Their results support the use of collaborative modes of intervention, modes in which the change agent and the sponsor set goals mutually. Collaborative change has been discussed by Bennis (1973) and Clark (1975). Additionally Dunn and Swierczek found evidence to support the hypothesis that change efforts in which the change agent has a participative orientation will be more successful than those in which non-participative orientations are evidenced; a participative orientation is one in which the focus is on increased involvement of organizational members, so as to release their full human potential (Clark, 1972). The third hypothesis for which Dunn and Swierczek found support was that change efforts employing standardized strategies which involved high levels of participation will be more successful than those which involve low levels of participation.

All three of these hypotheses, then, emphasize a humanistic approach; they focus on the way the change agent interacts with the organization and the extent to which organizational members participate in the change process.

The research of Dunn and Swierczek did not take place in a cross-cultural context; it is not unreasonable to expect that the results would be replicable in different cultures and in studies of cross-cultural change processes, but, of course, this conjecture needs to be validated. It is interesting to note that the hypothesis which did include reference to cross-cultural change was not supported. This hypothesis stated that change efforts in which the change agent is internal to the organization and indigenous to the society in which the change efforts are undertaken will be more successful than those in which the change agent is external and nonindigenous. Of course this hypothesis does not refer to the extent of cultural knowledge and sensitivity possessed by the change agent, be the change agent indigenous or non-indigenous.

Collaborative and participative change strategies would appear to be classifiable as normative-reeducative strategies, as presented by Chin and Benne (1976), rather than as empirical-rational strategies. Collaboration and participation would of necessity involve understanding and consideration of the norms, values and philosophies extant in the individuals and cultures represented. While knowledge about culture is necessary to the consideration of these factors in the formulation of change strategies, it is no guarantee that consideration will take place. This could be a reason why the hypothesis concerning indigenous change agents was not supported.

University of Houston Programs

The University of Houston has in recent decades participated in a number of international educational programs. Some of those in which the University's College of Education faculty have been active in the last ten years include a program of assistance in university

reform in Brazil, graduate programs in school administration (and other areas) for staffs of Department of Defense Overseas Dependents Schools and American or International schools in Europe and in the Near East/South Asia (NESA) region, and graduate programs for faculty and administrators at several Mexican universities. The goals for most of these programs included improvement in both instruction (e.g., development and improvement of faculty and staff, revision of curriculum) and in administration (institutional reorganization, improvement of management techniques, professional development of individual administrators).

Two of the most extensive programs dealt primarily with higher education administration. Through a contract with the Brazilian Council of Rectors (i.e., presidents of Brazilian universities), supported by the United States Agency for International Development (USAID), the University of Houston served as a central agent to develop and administer training programs by which Brazilian universities could improve their organization and administration. This program was begun in 1969 following other successful University of Houston-Brazil endeavors and continued through 1972. While not designed specifically in terms of change process theory, it relied heavily on the kinds of mechanisms noted by Sigurdson (1977), such as information transfer by courses, workshops, and published materials; on-site observation of successful institutional models; and consultant visits. In restrospect the model appears to have used primarily Chin and Benne's (1976) normative-reeducative strategy although also relying on the rational-empirical and to a lesser extent power-coercive (present because of government mandates for reform) strategies. Dozens of administrators at various levels, representing most

Brazilian universities, visited Houston and/or other United States and Latin American universities; in addition, most Brazilian universities received consulting visits from United States administrators. Since the program was only one element in a Brazilian national move for change, attributing specific changes to this source becomes difficult and in most cases impossible. Follow-up discussions, correspondence, and exchange visits indicate that numerous present administrative techniques began at that time, such as sophisticated institutional planning processes, better utilization of human and financial resources because of better allocation procedures, improved design and operation of physical facilities, and reorganization both through unifying city universities and establishing special-purpose branch campuses in outlying areas.

The most intensive program operating at the present time, and the focus of attention in this report, is the Cooperative Graduate Education Program between the University of Houston (UH) and the Autonomous University of Guadalajara (UAG) which was initiated in 1974. Original program goals for UAG included improvement of instruction and administration; the UH goals were multi-cultural experiences for faculty and students (including future school administrators and bilingual teachers) and research opportunities. A comprehensive evaluation of all elements of the program is still awaited, although an excellent summary to date was recently made by Romo (1979). (For example, between July 1974 and December 1978, sixty-five UAG faculty and administrators participated in either master or doctoral-level courses; forty-two M.Ed. degrees were awarded by the University of Houston; five Ed.D. degrees either have

been completed or are imminent, and nineteen more are expected to be completed in 1979-80; thirty-five University of Houston faculty participated in teaching. UAG has now begun its own master's degree program with ninety-two students currently enrolled from many Latin American nations, and is beginning a joint graduate program between UAG and the Catholic University of Petropolis, Brazil, modeled after the UH-UAG agreement.)

Evaluation of Technological Change

The most critical technology in the field of management is knowledge, knowledge of the theory and practice of administration. Technology as hardware becomes important only to the extent that it is useful in capturing and synthesizing data into usable information and communicating that information appropriately. Since these are processes for which automated data processing systems are especially useful, the computer becomes an important management technology.

The UAG program was not directed toward the solution of any particular set of organizational problems; consequently the changes and effects which result from the program were not anticipated in any particular area. The program included a range of content directed toward the expansion of management understandings and skills. The knowledge imparted in the program could be assessed directly through, for example, course final examinations, but a better measure of program effectiveness would be in the later use of the knowledge in the identification and resolution of management problems and the subsequent impact which this utilization attained.

The evaluation of change resulting from the UAG-UH program utilized a framework presented by Spuck and Bozeman (1978). This framework includes the dimensions of functioning, utilization and effect. Functioning is concerned with the potential for action; the knowledge, attitudes and skills which have been transmitted. Evaluation of functioning seeks to answer the question: Are people and hardware systems capable of carrying out administrative and management functions? Utilization focuses attention on the application of technology to the solution of administrative problems. What evidence exists that knowledge is being applied as a part of organizational change? Effect refers to the results or outcomes of the utilization: What are the personal and organizational consequences of the application of knowledge, skill or attitude? As is evident, the framework is hierarchical. In order to achieve effect, there must have been prior utilization, based upon still earlier knowledge acquisition. A primary objective of the evaluation, then, is to assess program impact at the second and third levels of the evaluative framework and attempt to ground the effects of utilization in technologies transmitted through the program.

In addition to the investigation of functioning, utilization and effect, an examination was made of factors which were perceived to facilitate or support change and those which were believed by program participants to inhibit change processes.

The process of change may be classified into the following five phases: awareness, feasibility testing and adaptation, adoption, implementation, and institutionalization. Awareness describes the discovery steps in becoming aware of a change alternative in relation

to a recognized need. Feasibility testing and adaptation is the process of weighing the merits of the proposed change as a solution to the identified problem and making adjustments in it so as to maximize its potential for problem resolution. Adoption includes the decision process, wherein a formal commitment is made within the institution to change, and the planning for the change to take place. The implementation phase occurs as the organization attempts to alter its previous pattern of functioning to accommodate the change. It is anticipated that further, but minor, change adaptation will take place during implementation. At some point in time, if or when the organization accepts the change as integrated into the normal routine of functioning, the change becomes institutionalized. Minor alterations of the change may continue to be incorporated, but the basic structure and function of the change remains.

The evaluation category of functioning overlaps with the change phase of awareness, while the remaining phases may be viewed as levels of utilization. These levels of utilization will, presumably, result in discernable organizational effects, as would be evidenced in evaluations of the change process.

The main focus of the UAG program was in the presentation of new technologies of knowledge. Knowledge as technique and theory may be seen as useful or non-useful, legitimate or not legitimate, or feasible or infeasible by the group to which the technology is presented. While the view of utility, legitimacy, and feasibility may itself change in time, institutional change resulting from the application of these technologies likely will be enhanced when the

technologies are viewed positively within the culture. It should be noted, too, in the study of administrative technology and change that knowledge of change processes and strategies is itself an administrative technology to be applied.

The Interviews

A set of interviews with selected UAG administrators and faculty members was chosen as the best method of gathering initial data needed to assess transfers and application of administrative technologies. Each interview, to be of approximately thirty minutes, was structured to insure discussion of the following points:

1. Identification of the most important changes in the application of administrative technology at UAG noted by the interviewee over the past five years;
2. Perceived level of impact of change on UAG (awareness, utilization, effectiveness);
3. Facilitators of change at UAG;
4. Inhibitors of change at UAG;
5. Suggestions as to how desirable changes might better be achieved;
6. Specific examples of ways in which the UH/UAG Program has affected the change process.

Two points emphasized at the beginning of each interview were (1) that the primary purpose was to study the change process, not to evaluate the UH program, per se, and (2) that focus was to be on problems or cases on which the individual could speak with authority (by providing specific evidence or examples, etc.).

Interviews were scheduled on the UAG campus (Guadalajara) and were conducted over a three-day period in February, 1979. Fourteen UAG administrators (including the Rector, all deans, and a number

of directors and department chairpersons) were interviewed for periods of thirty to sixty minutes each. Most, but not all, had attended one or more courses in the UH/UAG Program, and several were graduates of this program. Additional information was collected from UH faculty in the form of anecdotal comments pertaining to problems encountered in the transfer of technology in the instructional program.

Changes at UAG

The definitions of technology discussed earlier point out that the term includes not only material or physical components but also intellectual, organizational, and social components. Task-related knowledge, decision-guiding principles, and organizational behavior theories all represent technology. Interview responses of UAG participants which cited the impact of changes in administrative technology were categorized by area of administration: Structure and Organization, Personnel Resources, Financial and Physical Resources Planning and Management, and Research. (A fifth area, Instruction, was also noted, because of its importance in the responses of interviewees.) In each area, summaries of responses follow Spuck and Bozeman's evaluation model. Because an assessment of functioning (knowledge transfer) took place in the form of course examinations, no explicit attempt to reassess their level was made during these interviews. Evidence of utilization and effect is more directly observable and detectable than functioning, at this point in time; consequently these evaluative levels were emphasized in the case study. Changes were also examined relative to the five phases of awareness, feasibility testing and adaptation, adoption, implementation, and institutionalization.

In the area of Administrative Structure and Organization, UAG administrators observed that the University had changed structurally to decentralize several aspects of academic administration by splitting into three major academic units and delegating more administrative functions to lower-level administrators (e.g. department chairpersons, directors). At the same time, centralization of some other functions had occurred, and it was reported to have provided better planning, control and utilization of resources; examples of centralization include purchasing, personnel office activities, and coordination of class schedules. The institution also had become more complex through the adding of new service functions for the community, expanding of the postgraduate education office, initiating a staff development program for the improvement of teaching, creating of a large continuing education program, providing greatly-increased student services, adding administrative positions to cope with institutional growth, and participating in national-level projects involving training and large-scale industrial planning. Evidence pertaining to the effects of these new services and programs was not obtained. All the examples cited had proceeded through the phase of awareness and now were in one of the latter phases of feasibility testing and adaptation, adoption, implementation, or institutionalization. While awareness in some cases existed before the present UH-UAG Program, many such innovations were refined and adapted as part of this program.

The administrative area of Personnel Resources saw changes affecting faculty, administration and staff, as well as the attitudinal climate of UAG. Improved utilization of human resources resulted from better faculty recruitment and work-scheduling or

assignment. A comprehensive faculty evaluation procedure had been implemented, and a comprehensive staff-development program established (including the UH/UAG Program). Staff development efforts resulted in better-qualified administrators, with the percentage of those having received specialized administrative training having increased (by one estimate) from less than ten per cent to over eighty per cent. Evaluation of administrators had become more intensive and now included information from faculty. Better trained support staff (computer personnel, secretaries, etc.) had become available from University-sponsored courses, and efficiency had been improved through orientation procedures and the efforts of an expanded Personnel Office. The above examples have been implemented to some extent but, in addition, numerous remarks pertaining to the effects of these changes indicated a general awareness of satisfaction with the human relations "climate": "more sharing in decision making with more faculty and administrators involved in discussions"; "individual responsibilities now are much clearer because of better organization"; "better faculty-administration relationship, with more communication"; and "better personnel procedure (administration of working hours, less punitive action, more assistance) ... better human relations."

UAG administrators noted that in the field of Financial and Physical Resources Planning and Management a major change came through increased reliance on computerized management information systems. The computer system itself is relatively new, housed in a facility designed and built to contain it. The staff has recently been greatly increased and utilization has increased dramatically

because of newly trained administrators who not only requested service but were capable of assisting in program or system development. Sophisticated planning processes are not new at UAG, but MIS has improved them. Budgeting processes have incorporated more and better information (e.g., cost-benefit analyses). An academic master plan was developed to accompany a facilities master plan. Clearly articulated performance based goals were established for schools and departments.

Several UAG administrators commented on the increased use of research in solving administrative problems. A central research department was established; respondents believed that quality of research on institutional problems was improved, and that top administrators had learned to make better use of research. A new auditing office was established to review administrative efficiency (among other checks). Since other comments indicated that the older institutional research office had not changed as much as necessary to provide needed data for decision making, changes in this area should probably be placed in one of earlier phases of awareness or feasibility testing and adaptation. In addition to institutional research, investigations are also taking place in academic areas and for instructional improvement. Many of these studies are doctoral research projects undertaken by UH/UAG students.

Instructional methodology and technology at UAG had clearly changed in many departments. Program objectives were better articulated, course planning was more thorough, and instructional technology was widely available and heavily used.

In summary, UAG administrators reported observable changes in many facets of the University. Most frequently mentioned was

application of the computer in administration, teaching, and research; next came the changed instructional methodologies and technologies and the impact of large development programs undertaken for both faculty and administrators. The seeds for some of the changes were sown ten or fifteen (or more) years ago; others are of recent origin. Their effectiveness might be inferred not only from the general success of UAG, but also from the growing recognition throughout the Americas (and especially Latin America) that UAG is becoming a model institution in Mexico. A desire to share its knowledge and a further indication that they feel that the UH/UAG Program has been successful is shown in the recent agreement with the Catholic University of Petropolis, Brazil, by which UAG will work with staffs of several Brazilian universities in a model similar to that used between the University of Houston and UAG.

Facilitators and Inhibitors of Change

Facilitators and inhibitors identified by UAG respondents were of two types: one set which described conditions at UAG and were felt to affect change there, and another set which were believed to influence the effects of the University of Houston Program specifically. Both sets are summarized in terms of the conclusions drawn by Dunn and Swierczek (1977) and the strategies of Chin and Benne (1976).

Dunn and Swierczek (1977) found evidence to support three of eleven hypotheses studied; these three all suggest humanistic approaches involving significant and extensive participation by members of the recipient organization and high levels of collaboration between change agents and those affected by the change. The facilitating factors most frequently mentioned by UAG administrators

formed a cluster which described the leadership and support of the Rector and most other senior administrators. Specific comments noted an ability in these individuals to identify problems and needs, to make decisions, to support recommended changes to be persuasive or directive as needed, to provide accessibility to staff and good internal communications; in addition, an appreciation for educational research by top administration was noted. A second group of favorable comments pointed out that the total staff is generally young, highly motivated, and intelligent with a great deal of idealism; most are at UAG because they like it, providing high institutional loyalty; and a climate of willingness to experiment has developed ("there is a critical mass of faculty and administrators at UAG who accept innovation as a way of life").

On the other hand, it was pointed out that many older (and more senior) professors are resistant to change, that some administrators are weak in human relations skills, and that communication occasionally breaks down between levels of administration. A lack of adequate money, equipment, and technical support personnel has hindered application beyond the awareness phase in some areas. A lack of experience or sophisticated knowledge by some senior administrators has cause unwillingness to approve certain recommended projects.

Facilitating factors relating more directly to the UH/UAG Program fell into several groups. The climate formed by the Rector's personal interest, high motivation and persistence of students, and the reinforcement from colleagues also experimenting with change was seen as contributing to the successful transfer of knowledge and the application of this knowledge to local problems. An additional group of factors included the observation of successful models or examples (particularly during the residency period in Houston) and the inter-

change with representatives of various institutions to get different viewpoints. The UH/UAG program was seen as having emphasized involvement of UAG "students" in the planning of changes, and many exchange professors exhibited a willingness to learn with the UAG staff, providing an opportunity for mutual sharing of both information and benefits. Internships for individual students permitted time and opportunity to learn under supervision and to develop and test new ideas. Finally, as the program evolved, both UH faculty and UAG "students" became better able to adapt principles to the local circumstances of UAG and Mexico.

The UH/UAG Program was initially hampered by lack of clear objectives specifically attuned to local needs. In the early stages, it was also considered too flexible in some respects, and some lack of continuity was evident. Language was a problem throughout; most students (all doctoral students) read English adequately well, but most experienced difficulty, at least initially, in oral English communication. Since few UH professors could lecture in Spanish, lectures were presented in English with an interpreter on hand to translate. A smaller quantity of information was thus transferred in many cases, and possibilities for misunderstanding increased.

Some feeling was expressed that UAG staff members who had not participated in the program felt somewhat threatened by graduates of the program, who might benefit either because of favoritism or of superior training or of both.

Changes Suggested by Interviewees

UAG administrators were asked in the interviews to give suggestions which they believed would make (or would have made) for easier or more effective transfer of administrative technologies growing out of the UH/UAG Program. These suggestions were grouped into five sets, both to show their relationships to change theory and to make easier their use by a change agent. The topical sets are collaborative planning, acculturation/communication, program content and procedures, resources, and general conditions for change.

The first set of suggestions emphasized the need for early planning in which needs are identified, solutions defined, and program structures developed which are specific to the institution to be assisted. There should be equal involvement, and commitment, of participating institutions; all levels of the recipient institution should be involved in planning, implementing, participating in, and assessing the program. One comment suggested that "people should feel change is their own idea." The suggestions all appear to be consistent with Dunn and Swierczek's (1977) first hypothesis regarding collaboration.

The need to acculturate all individuals who will enter a different culture as minority representatives was seen as essential; this applies both to professors visiting the recipient institution and to students doing resident work at the change agent institution. Full linguistic competence of all parties was considered desirable but probably not fully attainable; in its absence, early provision of large quantities of translated materials would help bridge the communications gap. More programmed informal contacts for cultural interchange and absorption were suggested; it was also felt that

such opportunities would assist in evaluation of program results through observation in out-of-class contexts. The suggestions in this group support a key point in the normative-reeducative strategy proposed by Chin and Benne (1976).

In the suggestions about program content and procedures, appreciation was expressed for the existing format of course-based knowledge transfer, but a strong plea emerged for additional direct personal experience. Suggestions included more internships, demonstrations and observations involving model campuses or programs, more exchange of staff, and opportunity to observe senior administrators and governing councils at the change agent institution. Full assessment of the program was thought to be essential, with a provision for continuous feedback, good or bad, formal or informal. These suggestions are interpreted as further support for the strength of the normative-reeducative strategies over empirical-rational strategies as proposed by Chin and Benne (1976).

The importance of adequate resources was emphasized in the fourth set of suggestions. If changes are to grow from knowledge, resources must be provided in the form of money, equipment, and technical support personnel. All human resources should be developed; more researchers should be prepared.

The fifth set of suggestions generally expressed views of conditions thought to be necessary for change to succeed. The suggestions noted the necessity for institutional flexibility to meet new or changing needs but also recognized that resistance must be dealt with; if not through persuasion, then by occasional use of direct authority or by moving or working around a resistant individual.

Where governmental constraints are encountered, selective pressures on appropriate agencies may be needed to remove or modify the constraints. One suggestion reminded that before effective change can occur, a "critical mass" of human and material resources must be present. Several suggestions for models for diffusion strategy described international conferences in which UAG (and UH) have participated in which common problems are identified, ideas and experiences shared, and future strategies planned. Those suggestions appear to reinforce normative-re-educative strategy.

Conclusions

In the case analysis reported here, considerable evidence was found supporting the successful transfer of administrative technology. Course examinations indicated that a level of functioning (potential for action) had been attained, and further investigation identified a number of examples of utilization. The few direct effects which could be assessed at this time were, for the most part, positive. Perhaps the best indicator of program success, on a general level, was the UAG decision to replicate the program with the Catholic University of Petropolis in Brazil.

The UH/UAG Program in its original design primarily emphasized an empirical-rational approach by specifying courses and degree programs. Chin and Benne (1976) suggested that this strategy might not appropriately recognize the problems of introducing new technology into a different culture, and identified a second strategy of normative-re-educative. A few problems were manifest as a result of UH faculty not having a full initial understanding of the cultural and educational context of Guadalajara and Mexico, and, of course, as a result of not having proficiency in the Spanish language.

Attempts to take greater account of culture likely would have resulted in a more effective program. Increased cultural awareness could have been achieved through the use of printed materials (e.g., a self-study course); and inservice program at UH, provided by resident UAG students; or through a program at UAG. It would be expected that this awareness would provide a basis for instructional program adaptation. An attempt was made to assist UH faculty in Spanish language skill development. (About ten faculty participated in this effort. This course was held at UH and taught by UAG students.) Additional efforts of this type might have been attempted; for example, an individual tutorial in Spanish could have been arranged for one hour a day while UH faculty were teaching in Guadalajara. Still, experience in the UH/UAG Program shows that language difficulties were not insurmountable; and, that although cultural mismatches did occur at the program's beginning, both UH and UAG participants became adept at adapting administrative principles to political and social realities of Mexican higher education. Emphasis on course and degree requirements has remained dominant throughout the program, but examples of program spin-offs (e.g., establishing a new continuing education program, purchasing new computer equipment) show how new normative-re-educative projects have grown out of the original program.

As noted earlier, facilitators and inhibitors fell into two sets: one believed to affect the change process at UAG (regardless of the source of change), and another which appeared to affect changes emanating directly from the UH/UAG Program. In both cases, the cited examples appear to be consistent with the first of three hypotheses observed by Dunn and Scwierczek (1977): collaborative modes of

intervention, with goals set mutually, are effective. The presence of collaboration was seen as facilitative; several inhibitors appeared where a lack of adequate collaboration occurred.

The second of the three hypotheses supported by Dunn and Swierczek compared participative with non-participative intervention, focusing on increased involvement of organizational members, so as to release their full human potential. The present study was not designed to test this hypothesis (i.e., non-participative elements were not deliberately included). Nevertheless, it was observed that high levels of participation were achieved and changes did follow; the professional threat perceived by some non-participants may lend further indirect support.

The third hypothesis for which Dunn and Swierczek found support was that change efforts employing standardized strategies involving high levels of participation will be more successful than those which involve low levels of participation. Although techniques or strategies such as Organizational Development (for example) were included in course content, the strategies were not governing the program itself.

The evidence in this case analysis, then, provided support for the hypotheses presented by Dunn and Swierczek (1977) concerning collaboration and participation change models. Some support also was obtained, however, for hypotheses which were not supported by Dunn and Swierczek, such as "change efforts in which the task environment is long-term unstable will be more successful than change efforts carried out in other types of environments (p. 143)." Case study analysis is inherently more exploratory or hypothesis generative than confirmatory and such is the situation here. Further examination of change theory and technological transfer is certainly

warranted in cross cultural, as well as in differing cultural contexts. Such investigation will provide theory which is applicable to these settings, illuminate fundamental assumptions which are culturally specific, and result in a body of theory which is more general (less culturally embodied or more culturally reflective) and therefore is more useful.

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